

What is claimed is:

1. A method of editing a bitstream carrying video data indicative of a video sequence, said method comprising:

5 acquiring from the bitstream data indicative of transform coefficients of at least part of the video sequence; and

modifying the acquired data in the transform domain for providing modified data in a modified bitstream in order to achieve a video effect in said at least part of the video sequence.

10 2. The method of claim 1, wherein said acquiring comprises:

decoding the bitstream for obtaining a plurality of quantized transform coefficients; and

15 converting the quantized transform coefficients by inverse quantization for providing the transform coefficients.

3. The method of claim 2, wherein the modified data contain a plurality of quantized modified transform coefficients, and said modifying comprises changing the transform coefficients for providing a plurality of modified transform coefficients, said method further comprising:

20 quantizing the modified transform coefficients for providing a plurality of quantized modified transform coefficients in the modified bitstream.

4. The method of claim 1, further comprising:

25 obtaining further data indicative of a plurality of further transform coefficients, wherein said modifying comprises

combining the further data with the acquired data for providing the modified data.

5. The method of claim 4, wherein said combining comprises:

30 multiplying the further data by a first weighting parameter for providing a first weighted data;

multiplying the acquired data by a second weighting parameter for providing a second weighted data; and

summing the first weighted data and the second weighted data for providing the further data.

6. The method of claim 5, wherein one or both of the first and second weighting
5 parameters are adjusted to achieve a blending effect.

7. The method of claim 5, wherein one or both of the first and second weighting
parameters are adjusted to achieve a sliding transitional effect.

10 8. The method of claim 4, wherein the further data is indicative of the further transform
coefficients of a different part of the video sequence.

9. The method of claim 4, wherein the further data is obtained from a different
bitstream.

15 10. The method of claim 4, wherein the further data is obtained from a memory device
via a transform operation.

11. The method of claim 1, further comprising:
20 decoding the bitstream for obtaining a plurality of quantized transform coefficients;
and
converting the quantized transform coefficient in an inverse quantization operation
for obtaining a plurality of dequantized transform coefficients for use in said modifying.

25 12. The method of claim 11, further comprising:
inversely transforming the dequantized transform coefficients for obtaining
information indicative of a prediction error;
combining the prediction error with motion compensation information in the video
data for providing further video data indicative of a reference frame;
30 transforming the further video data for providing transformed reference data; and
combining the transform reference data with the transform coefficient in said
modifying.

13. The method of claim 12, further comprising:
obtaining a plurality of further transform coefficients from a memory device via a
transform operation; and
combining the further transform coefficients with the transform coefficient in said
5 modifying.

14. The method of claim 12, further comprising:
obtaining a plurality of further transform coefficients from a different bitstream; and
combining the further transform coefficients with the transform coefficients in said
10 modifying.

15. A video editing device for editing a bitstream carrying video data indicative of a
video sequence, said device comprising:
an acquiring module, responsive to the bitstream, for acquiring data indicative of
15 transform coefficients of at least part of the video sequence; and
a modification module, responsive to the acquired data, for changing the transform
coefficients in the transform domain for providing modified data in a modified bitstream in
order to achieve a video effect in said at least part of the video sequence.

16. The editing device of claim 15, wherein the acquiring module comprises:
a decoding module, responsive to the bitstream, for obtaining a plurality of
quantized transform coefficients; and
an inverse quantization module, responsive to the quantized transform coefficients,
for providing the transform coefficients.

17. The editing device of claim 16, wherein the transform coefficients are changed in
the transform domain to become modified transform coefficients by the modification
module, said editing device further comprising:
a quantization module for quantizing the modified transform coefficients for
30 providing a plurality of quantized modified transform coefficients in the modified data.

18. The editing device of claim 15, further comprising:

a further acquiring module for obtaining further data indicative of a plurality of further transform coefficients; and

a combination module, for combining the acquired data and the further data for providing the modified data.

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19. The editing device of claim 18, wherein the further data is acquired from a memory device via a transform module.

20. The editing device of claim 15, further comprising:

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a further acquiring module for obtaining further data indicative of a plurality of further transform coefficients;

an inverse transform module, responsive to the further data, for providing information indicative of a prediction error;

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a combination module, responsive to the prediction error and motion compensation information in the video data, for providing reference data indicative of a reference frame; and

a transform module, responsive to the reference data, for providing transformed reference data to the modification module so as to change the transform coefficient based on the transformed reference data.

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21. The editing device of claim 20, further comprising:

a further transform module, responsive to additional data in a memory device, for providing transformed additional data to the modification module so as to change the transform coefficients further based on the transformed additional data.

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22. A video coding system, comprising:

a decoder; and

an encoder for receiving a bitstream carrying video data indicative of a video sequence, wherein the encoder comprises a video editing device for editing the bistream, the editing device comprising:

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an acquiring module, responsive to the bitstream, for acquiring data indicative of transform coefficients of at least part of the video sequence; and

a modification module, responsive to the acquired data, for changing the transform coefficients in the transform domain for providing modified data in a modified bitstream in order to achieve a video effect in said at least part of the video sequence, and

5 wherein the decoder is operable

in a first mode for reconstructing video from the video data carried in the bitstream, and

in a second mode for reconstructing video from the modified data in the modified bitstream.

10 23. An electronic device comprising:

a video data acquisition means for acquiring a bitstream carrying a video sequence having video data; and

a video editing device for editing the bitstream to achieve a video effect, the editing device comprising:

a first module for obtaining from the bitstream transform coefficients of at least a part of the video sequence;

a second module for modifying the transform coefficients in the transform domain for providing modified transform coefficients; and

20 a third module for converting the modified transform coefficients into modified video data in a modified bitstream.

24. A software product for use in a video editing device for editing a bitstream carrying video data indicative of a video sequence, said software product comprising:

25 a code for extracting from the bitstream data indicative of a plurality of transform coefficients of at least part of the video sequence; and

a code for modifying the transform coefficients for providing modified data indicative of the modified transform coefficients.

30 25. The software product of claim 24, further comprising:

a code for mixing the transform coefficients of said at least part of the video sequence with other transform coefficients.

26. The software product of claim 24, wherein the code for extracting comprises:
a code for decoding the bitstream for obtaining a plurality of quantized transform
coefficients; and
a code for converting the quantized transform coefficients by inverse quantization
5 for providing the transform coefficients.

27. The software product of claim of 26, wherein the code for modifying comprises:
a code for changing the transform coefficients for providing a plurality of modified
transform coefficients, said software product further comprising:

10 a code for quantizing the modified transform coefficients for providing a plurality of
quantized modified transform coefficients in a modified bitstream.

28. The software product of claim 25, wherein the code for mixing comprises:
a code for multiplying the transform coefficients by a first weighting parameter for
15 providing a first weighted data, and multiplying the other transform coefficients by a second
weighting parameter for providing a second weighted data; and
a code for summing the first weighted data with the second weighted data for
providing the modified data.

20 29. The software product of claim 25, further comprising:
a code for extracting stored data from a memory for providing further data; and
a code for transforming the further data for providing the other transform
coefficients.

25 30. The software product of claim 24, further comprising:
a code for decoding the bitstream for obtaining a plurality of quantized transform
coefficients; and
a code for converting the quantized transform coefficient in an inverse quantization
operation for obtaining a plurality of the dequantized transform coefficients;
30 a code for inversely transforming the dequantized transform coefficients for
obtaining information indicative of a prediction error;
a code for combining the prediction error with motion compensation information in
the video data for providing further video data indicative of a reference frame;

a code for transforming the further video data for providing transformed reference data; and

a code for mixing the transform reference data with the transform coefficient for providing the modified data.